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## **The Index of Economic Freedom: Methodological matters**

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# **The Index of Economic Freedom: methodological matters**

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## **Abstract**

Composite indicators (CIs) are essential in public debates and policies so the social demand for synthetic tools is constantly increasing. They are also subject to criticism (see Saisana and Saltelli 2010; Klugman et al, 2011) due to lack of a gold standard in their construction. The Index of Economic Freedom (IEF) is one of these tools subject to criticism because it suffers from methodological matters. The IEF lacks statistical validity because two of its components are strongly and negatively correlated with the others. Both components are causing significant variations in 95 percent of countries ranked. This paper deals with these issues by using Principal Components Analysis (PCA) and Benefit Of the Doubt (BOD) methods to generate component and country specific weights in computing the scores. The PCA and BOD analyses provide consistent results that differ dramatically with the baseline ones (results using equal weights). Given stable results provided by the PCA and BOD analysis, the IEF would receive broad legitimacy basing the calculation of its scores on endogenous weighting models.

**Keywords:** Index of economic freedom; Principal components Analysis; Benefit of the Doubt weighting system; country ranking

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## 1. Introduction

Composite indicators (CIs) are used in a wide range of fields such as the environment, the economy, society and technological development (OECD-JRC, 2008). CIs allow us to see “the big picture” and the complexity of a given sector, which cannot be captured by an individual indicator. It is an ideal means for comparing the performance of different countries. The United Nations Development Program (UNDP) has created many CIs such as the Human Development Index (HDI) which allows us to compare countries by taking into account the following dimensions: income, life expectancy and education. Nowadays, public policies are largely dependent on these synthetic tools. Hence, former French President, Mr. Nicolas Sarkozy, launched in 2008 a commission named “Commission on the Measurement of Economic Performance and Social Progress” or “Commission Stiglitz-Sen-Fitoussi”. The social demand for such multidimensional measures has increased, like the political one as a consequence, and of course, research has increased as well (see Figure 2 in appendix 1).

Obviously, such indicators are not without their critics (Saisana and Saltelli, 2010; Klugman, et al, 2011). Most of these critics focus on the methodological aspects in the CIs construction. In particular, the choice of certain weights of variables as components in CIs can be very subjective with no empirical evidence nor defendable theoretical foundation presented (Conseil de l’Europe, 2005; Stiglitz, Sen and Fitoussi, 2009).

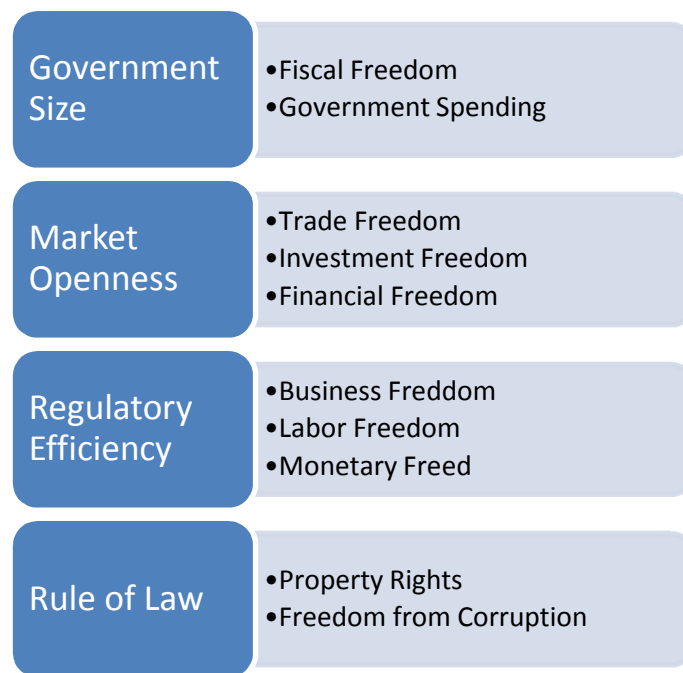
As a consequence, these critics persist in questioning the local legitimacy of these indicators as guidance and follow-up tools for public actions (FAIR, 2011) since they can send misleading policy messages if they are poorly constructed or misinterpreted (Saisana and Saltelli, 2010).

For the past two decades, the Heritage Foundation has published annually an index of economic freedom (IEF) in 186 countries all over the world. The index focuses on four aspects of the economic environment over which governments can exercise some policy control which can condemn individuals to poverty and deprivation (Heritage Foundation ,2014). Unfortunately, the index suffers from statistical validity. Two of its ten components are strongly and negatively correlated with the others meaning that all components are not necessarily equally weighted in the composite index (Nardo et al. 2005; OECD and JRC, 2008).

This paper deals with this issue using PCA and BOD approach to generate unequal weights. The article is organized as follow: section 2 provides a short methodological description of the two problematical components of the index. We assess the contribution of two negative correlated components to countries ranking by removing them. Section 3 uses the two PCA and BOD methods to generate country specific score. Section 4 concludes by giving the salient points of the analysis.

## **2. Index of Economic Freedom: methodological presentation**

According to the Heritage Foundation, most individuals lack economic freedom and opportunity because most of them are not free to work, produce, consume and invest in any way they please. Yet, economic freedom is one of the fundamental human rights. To assess the degree of a economically free society, the Heritage foundation constructed an index of economic freedom. The index focuses on four key aspects of economic activity over which governments can exercise some policy control. The four key domains are namely government size, market openness, regulatory efficiency and rule of law. The four aspects (pillars) are subdivided into 10 components (see Figure 1) that are aggregated using an arithmetic mean with equal weight. The index ranges from 0 to 100 with 100 the highest score.



**Figure 1 – The IEF framework**

As recommended by Tarantola et Vertesy (2012), a multivariate analysis has to be carried out in order to verify the internal statistical consistency of the data within each pillar/dimension of the conceptual framework. Ideally, a composite indicator is structured in such a way that each pillar describes a single latent component. This requires a positive and high level of correlation within each pillar. There are two ways to test this: using a correlation table including all indicators and by conducting classical Principal Component Analysis (PCA) as a method of dimensionality. Based on the PCA results, relevant dimensions can be accepted if they adhere to the following criteria: (a) have an eigenvalue above 1 (Kaiser criterion); (b) account for at least 10% of total variance; (c) cumulatively contribute to more than 60% of total variance (OECD-JRC, 2008).

As we will see in Table 1, the “Government size” pillar is a problematic one. But first, let’s explain exactly what it is. The components of the three other pillars are detailed in Appendix 2.

### **Government size**

As illustrated in **Figure 1**, two indicators are used to take into account the influence of government control on economic freedom. They are fiscal freedom and government spending.

**Fiscal freedom** measures the level of taxation of both individual and corporate income. The authors use a quadric cost function in the sub-indicator construction to reflect the diminishing revenue returns from very high rates of taxation. Formally, the index is:

$$Fiscal\ freedom_{ij} = 100 - \alpha(Factor_{ij})^2 \quad (1)$$

Where  $j$  denotes three levels of taxation such as the top marginal tax rate on individual income, the top marginal tax rate on corporate income, and the total tax burden as a percentage of GDP;  $i$  denotes the country. The  $\alpha$  parameter is calibrated to 0.03. Indeed, when there is no tax burden, the country gets the highest score which is equal to 100.

**Government spending** captures the burden induced by government expenditures including state consumption and transfer payments. The idea is that government spending causes chronic budget deficits and the accumulation of public debt. Those are one of the most serious drags on economic dynamism. Methodologically, the authors use the same formula as fiscal freedom to construct scores:

$$Government\ Expenditures_i = 100 - \alpha(Expenditures_i)^2 \quad (2)$$

Where  $\alpha$  is scaled to 0.03. The benchmark is zero expenditure while the optimal spending is assumed to be 30% of GDP. There is no theoretical justification for such a choice. Furthermore, if the government spending is greater or equal to 58% of GDP, the country score in this component is zero. In other words,  $\alpha(30\% \text{ of } GDP)^2$  provides an optimal score for the country  $i$  while  $100 - \alpha(58\% \text{ of } GDP)^2 = 0$ .

### **Country ranking assessment without fiscal freedom and government spending components**

The two components have more impact on country ranking. As Table 8 shows in the appendix, removing the two components (fiscal freedom and government spending) causes large variations in country ranking. Considering 2014 IEF data, 95 per cent of countries change place. Most of them lose places ranging from one place (for Benin, Angola, and Singapore) to 23 (for Vanuatu). Countries such as France and Lesotho improve their scores and gain 43 and 50 places respectively. These preliminary results support our intuition that the two components deserve special attention. The section below deals with this matter.

### **3. Using PCA and BOD approaches for generating specific weights**

#### **3.1. PCA approach and correlation validity**

Once again, and following the recommendation of Tarantola and Vertesy (2012), each pillar should describe a single latent component which requires a positive and high level of correlation within each pillar and positive correlation inside each pillar. Furthermore, the question of weights is always an important one. Table 1 shows the correlation structure between the different components. As one can easily see, the two components, “Fiscal Freedom” and “Government Spending”, which define the “Government Spending” pillar, are negatively correlated to the others. Such a negative correlation can be interpreted in two ways: first, the definition of the components is problematic; second, these components should belong to a separate pillar different from all the other components. We will not discuss whether or not these two components are theoretically well-defined, but we will concentrate on the second solution by conducting a PCA analysis.

**Table 1-Pearson Correlation Matrix**

	PROPERTY RIGHTS	FREEDOM FROM CORRUPTION	FISCAL FREEDOM	GOV'_T SPENDING	BUSINESS' FREEDOM	LABOR FREEDOM
PROPERTY RIGHTS	1.000					
FREEDOM FROM CORRUPTION	0.934	1.000				
FISCAL FREEDOM	<b>-0.211</b>	<b>-0.240</b>	1.000			
GOV'_T SPENDING	<b>-0.317</b>	<b>-0.371</b>	0.476	1.000		
BUSINESS FREEDOM	0.702	0.680	0.077	<b>-0.209</b>	1.000	
LABOR FREEDOM	0.359	0.355	0.261	<b>-0.031</b>	0.439	1.000
MONETARY FREEDOM	0.479	0.432	0.193	<b>0.037</b>	0.474	0.303
TRADE FREEDOM	0.505	0.489	0.128	<b>-0.130</b>	0.577	0.313
INVESTMENT FREEDOM	0.706	0.631	<b>-0.092</b>	<b>-0.139</b>	0.612	0.271
FINANCIAL FREEDOM	0.746	0.670	<b>-0.020</b>	<b>-0.134</b>	0.644	0.278

**Results of PCA Analysis**

PCA analysis highlights that at least two components exist. Notice that PCA supposed a linear arithmetic aggregation method. Methodologically, three conditions have to be satisfied. First, to determine the number of relevant latent variables in the set of components, the eigenvalue associated with the variable adopted should be  $\geq 1$ . Second, the individual contribution of the variable to the total variance should be at least  $\geq 10\%$ . Third, the cumulative of variances must be  $\geq 60\%$ .

**Table 2: Determining the number of relevant factors**

Factors	Eigenvalues	% of variance	Cumulative %
<b>Factor 1</b>	<b>4.999</b>	<b>49.993</b>	<b>49.993</b>
<b>Factor 2</b>	<b>1.742</b>	<b>17.416</b>	<b>67.409</b>
<b>Factor 3</b>	0.899	8.991	76.400
<b>Factor 4</b>	0.606	6.055	82.455
<b>Factor 5</b>	0.483	4.832	87.287
<b>Factor 6</b>	0.428	4.278	91.565
<b>Factor 7</b>	0.326	3.255	94.820



<b>Factor 8</b>	0.287	2.872	97.692
<b>Factor 9</b>	0.174	1.744	99.436
<b>Factor 10</b>	0.056	0.564	100.00

**Table 2** shows that there are two relevant factors because only the first two factors meet the first condition of the choice of the number of latent factors (i.e. eigenvalues  $\geq 1$ ). This result means that components belonging to each of those factors cannot be equally weighted as the Heritage Foundation has done. These results allowed us to use PCA method to generate countries specific weights.

**Table 3: Components weights generated from PCA approach**

Variables	Weights	Weights variation (%)
Property Rights	0.115	15
Freedom from Corruption	0.103	3
Fiscal Freedom	0.124	23
Gov't Spending	0.095	-5
Business Freedom	0.110	10
Labor Freedom	0.045	-55
Monetary Freedom	0.084	-16
Trade Freedom	0.094	-6
Investment Freedom	0.113	13
Financial Freedom	0.119	19

Table 3 shows, in contrast to the equal weight adopted by the Heritage Foundation, the specific component weight and its deviation (in %) from the equal weight assumption. As one can see, although a small variation occurs concerning the Freedom from corruption indicator (+3%), the change is substantial for the Labor Freedom indicator and the Fiscal Freedom one. This analysis can be done by looking at changes in the pillar level. As shown by Table 4, it impacts mainly the Regulatory Efficiency domain. The global weight of this key domain is reduced by 20 %, while all the other domains weight increase by approximately 8%.

**Table 4- Evolution of the weights of the four key domains of the IEF**

Pillar	IEF	PCA	Deviation (%)
Government size	0.2	0.218	+8.96
Market Openness	0.3	0.326	+8.70
Regulatory Efficiency	0.3	0.238	-20.56
Rule of Law	0.3	0.218	+8.83

This result challenges the scores generated with the equal weighting method and consequently, the countries scorings and rankings. As one can note from Table 9, some important changes occur. At the extreme, the ranking of Morocco increases by 16, while the one of Tonga decreases by 9. The ranking of the US decreases by 9, moving from the 12<sup>th</sup> position to the 21<sup>st</sup> one. Indeed, as seen from Table 9 in the appendix, most of countries move from their initial positions (only 3% of countries retain their initial classification). The extent of the scores variation (compared to the baseline: equal weight) indicates that the equal weighting method adopted by the Heritage Foundation is a major methodological problem. Nevertheless, the positions of the first seven countries remain unchanged.

**Table 5- Variation of the final ranking for some selected countries**

Country Name	IEF (2014) Ranking	PCA Ranking	Rank Variation
<b>Honduras</b>	112	96	+16
<b>Brazil</b>	114	106	+9
<b>South Korea</b>	31	23	+8
<b>Finland</b>	19	12	+7
<b>Tonga</b>	104	117	-13
<b>United States</b>	12	21	-9

### 3.2. BOD approach

The Benefit of the Doubt (BOD) approach allows weighting that is endogenously determined by the data in such a way that they are country specific. Furthermore, by looking at the values of those weights, it is possible to discuss whether or not the country has placed priorities in some specific dimensions of the index. The BOD method is based on the Data Envelopment Analysis (DEA) technique (Nardo et al. 2005; OECD-JRC 2008; DREES 2011).

Formally, one needs to solve the following maximization problem:

$$CI_s = \max_{\{w_{s,i}\}_{i=1,\dots,m}} \sum_{i=1}^m w_{s,i} y_{s,i}$$

$$\text{s.t.} \begin{cases} \sum_{i=1}^m w_{s,i} y_{\tilde{s},i} \leq 1 & \tilde{s} = 1, \dots, k \\ w_{s,i} \geq 0 & i = 1, \dots, m \end{cases}$$

with k the number of countries, and m the number of dimensions m=10 in the IEFcase.

**Table 6- Components specific weights and associate scores for selected countries**

Country Name	Property Rights	Freedom from Corruption	Fiscal Freedom	Gov't Spending	Business Freedom	Labor Freedom	Monetary Freedom	Trade Freedom	Investment Freedom	Financial Freedom	score
<b>Honduras</b>	0.000	0.000	0.187	0.406	0.000	0.000	0.564	0.000	0.000	0.000	91
<b>Brazil</b>	0.000	0.000	0.126	0.010	0.000	0.000	0.975	0.000	0.000	0.082	82
<b>South Korea</b>	0.000	0.000	0.000	0.067	0.134	0.000	0.985	0.000	0.000	0.000	96
<b>Finland</b>	0.642	0.054	0.011	0.000	0.057	0.000	0.000	0.000	0.346	0.000	100
<b>Tonga</b>	0.000	0.000	0.386	0.000	0.000	0.672	0.000	0.000	0.000	0.000	95
<b>United States</b>	0.062	0.000	0.000	0.000	0.000	0.979	0.000	0.000	0.000	0.000	100
<b>North Korea</b>	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5
<b>China</b>	0.000	0.000	0.000	0.781	0.000	0.005	0.348	0.000	0.000	0.000	91
<b>France</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	92
<b>Germany</b>	0.706	0.000	0.000	0.000	0.064	0.000	0.000	0.000	0.335	0.000	99

**Table 6** presents various kinds of countries. These include the much more open countries such as the United States, and the protected ones like North Korea. The table shows that those heterogeneous countries have different policies according to their economy regulations. Furthermore, regulatory policies are different even within the same economic union. Indeed, if Germany focuses on several key variables (this diversification possibly explains its very high score of 99), France IEF is exclusively determined by only the trade freedom component. It is not surprising to notice the very low score for North Korea regarding its very little contact with the rest of the world. In the selected countries, only Finland's index components can be considered as well-balanced (five of the components in Finland's case received a weight different from zero), while the other countries have very specific priorities.

The complete results are presented in Table 10 in the appendix. The first one gives the specific component weights generated for each country. According to the BOD approach, Table 10 shows that all countries have very various priorities in terms of economic freedom. Most of them consider trade freedom as the first priority in the set of economic freedom components and this is followed by fiscal freedom in second place. Only Singapore constitutes a particular case: while the others concentrate all their efforts on the other dimensions of the index than property rights, Singapore has concentrated all its efforts on property rights (the weight in this component equals 1 which implies that weights of the nine remaining components equal zero). It is also important to note that no country gives equal importance to the ten components of the index as was supposed by the Heritage Foundation.

**Table 7- Equal, PCA and BOD weights variation**

	Equal	PCA	BOD <sup>3</sup>	Deviation (%) between PCA and Equal	Deviation (%)between PCA and BOD	Deviation (%)between PCA and BOD
PROPERTY RIGHTS	0.1	0.115	0.059	15	-41	48
FREEDOM FROM CORRUPTION	0.1	0.103	0.008	3	-92	92
FISCAL FREEDOM	0.1	0.124	0.160	23	60	-29
GOV_T SPENDING	0.1	0.095	0.190	-5	90	-100
BUSINESS FREEDOM	0.1	0.110	0.010	10	-89	90

<sup>3</sup> The summary weights are the overall of countries specific weights.

<b>LABOR FREEDOM</b>	0.1	0.045	0.028	-55	-71	37
<b>MONETARY FREEDOM</b>	0.1	0.084	0.263	-16	164	-214
<b>TRADE FREEDOM</b>	0.1	0.094	0.254	-6	154	-170
<b>INVESTMENT FREEDOM</b>	0.1	0.113	0.024	13	-76	78
<b>FINANCIAL FREEDOM</b>	0.1	0.119	0.059	19	-41	48

Results of Table 11 confirm that using the equal weighting method to generate countries scores in the case of the IEF is an inappropriate approach. The country specific approach (BOD) reveals that countries do not have the same policies in terms of economic freedom and so, components of this index must be weighted differently. Doing so, one can observe that the method favors certain countries (53% of countries) while 47% of them saw their scores decreased. The contrast of those results (weights variation between the three methods used in this paper are very important, see [Table 7](#)~~Table 7~~) reinforces the necessity to justify the methodological approach adopted by a coherent theoretical framework.

## Conclusion

The aim of this paper was to highlight the methodological problem of the choice of equal weighting in the Index of Economic Freedom. The principal components analysis found broad agreement that there are two distinct latent components in the index suggesting different weights of the components. Using the PCA method, countries scores and rankings are dramatically changed as compared to the baseline. The Benefit Of the Doubt method used secondly confirms the necessity to adopt a country specific weighting method in the case of the IEF. The contrast of those results reinforces the necessity to justify the methodological approach adopted by a coherent theoretical framework. Using statistical tools such as PCA or adopting a country specific weighting method like BOD seem to be a more legitimate approach than the simple equal weighting method. In order to keep its legitimacy, the Heritage Foundation should adopt one of the approaches developed in this paper, as our results have questioned the annual publications of this institute.

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## Appendix

### Appendix 1: Evolution of the use of Cis for research purpose.

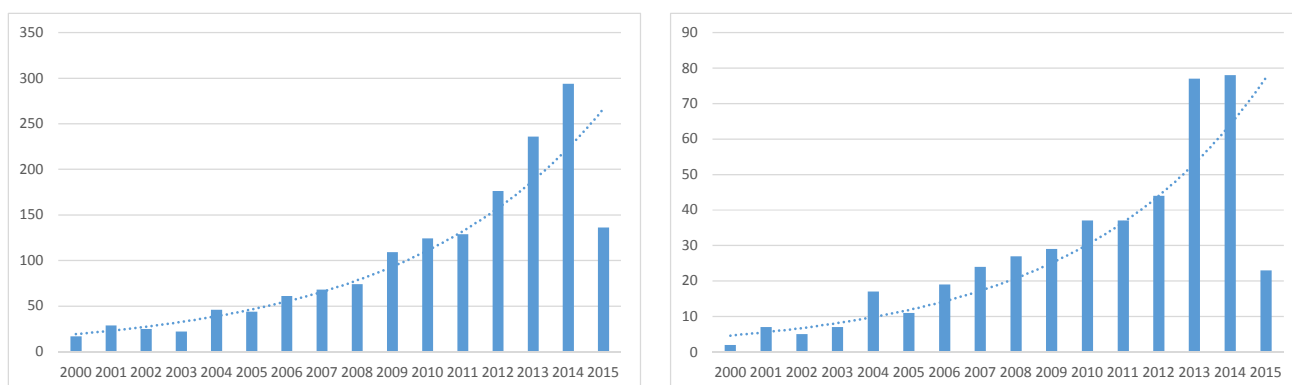


Figure 2 - Evolution of the number of research articles on “Composite Indicators” published in ScienceDirect between 2000 and 2015 (18/03) in all journals (left side) and in Economics, Econometrics and Finance journals (right side)

### Appendix 2: The eight other components of the IEF

#### Rule of Law

Two components are used to assess this aspect: property rights and freedom from corruption. The properties rights are used to capture private accumulated property and its protection. The more effective protection of property is balanced with a higher score. The authors use a categorical scheme to allocate the scores within countries. The idea behind freedom of corruption is that corruption erodes economic freedom by introducing insecurity and uncertainty. It also reduces economic vitality by increasing costs and shifting resources into unproductive activities (Heritage Foundation, 2014). The score of this component derives from Transparency International’s Corruption Index (CPI) following this formula:  $Corruption_{xi} = \frac{(10 - CPI)}{(10 - 95) \times 100}$  where 10 and 95 are respectively upper and lower bounds. According to 2012 review methodology, the higher value of CPI is to assign very little corruption.

## Regulatory efficiency

Three components are used here: business freedom, labor freedom and monetary freedom. Business freedom captures the ease of starting, operating and closing a business using ten World Bank “doing business” indicators. Each index of the sub-indicator is scaled from zero to 100 using the following formula:  $Facor\ score_i = 50 \times Facor_{average} / Factor_i$  where  $Facor_{average}$  is the overall score of the 187 countries.

Labor freedom assesses the regulation of the country labor market such as the existence of minimum wage, laws inhibiting layoffs, severance requirements and measurable regulatory restraints on hiring and hours worked. The authors use the same formula as this described above.

$Facor\ score_i = 50 \times Facor_{average} / Factor_i$  where  $i$  denotes the six following factors: ratio of minimum wage to the average value added per worker, hindrance to hiring additional workers, rigidity of hours, difficulty of firing redundant employees, a legally mandated notice period, and mandatory severance pay. The labor freedom index is the simple average score of the six factors weighted equally.

The monetary freedom component combines price stability and price control. The authors assume that both inflation and price control distort market activity. Price stability without microeconomic intervention (on the country level) is the ideal state for a free market (Heritage Foundation, 2014). The monetary freedom index is constructed as follows:

$Monetary\ freedom_i = 100 - \alpha (weighted_{avg.inflation} - Price\ control\ penalty)^{1/2}$  with  $weighted_{avg.inflation}$  the inflation rates of the past three years taken on average;  $Price\ control\ penalty$  ranging from zero to 20 where 20 is assigned as a severe penalty due to price control. The  $\alpha$  parameter represents a coefficient that stabilizes the variance of scores. It is assumed to be 6.333.

## Market openness

The remaining three components namely trade freedom, investment freedom and financial freedom are grouped in this last aspect. Trade freedom is the measure of the extent that tariffs



and non-tariffs impact goods and services trade. The trade freedom sub-indicator is normalized as follows:

$$Trade\ Freedom_i = \left[ \left( \frac{(Tariff_{max} - tariff_i)}{(Tariff_{max} - tariff_{min})} \right) \times 100 - NTB_i \right] \quad \text{where}$$

$NTB_i$  denotes Non-Tariff Barriers penalty ranges from zero to 20.

Both investment freedom and financial freedom components use a categorial scheme to assign countries scores. The investment freedom scheme ranges from 0 (no national treatment, prescreening or expropriation with no legal recourse) to 100 (most transfers approved with some restrictions or one or two sectors restricted). The same scheme is used to scale the financial freedom sub-indicator score with 0 if the government uses repression and 100 if there is negligible government interference.

**Table 8: Country ranking assessment without fiscal freedom and government spending components**

Country	score	Rank	Rank variation
Albania	62.6	67	-13
Algeria	47.1	138	8
Angola	41.7	161	-1
Argentina	41.5	163	3
Armenia	65.1	55	-14
Australia	86.7	5	-2
Austria	81.2	13	11
Azerbaijan	57.5	85	-4
Bahamas	64.5	59	-23
Bahrain	72.5	28	-15
Bangladesh	47.0	140	-9
Barbados	69.9	37	8
Belarus	43.9	153	-3
Belgium	79.9	15	20
Belize	51.4	121	-6
Benin	52.1	114	-1
Bhutan	53.4	105	11
Bolivia	41.8	160	-2
Bosnia and Herzegovina	59.2	76	25
Botswana	71.2	31	-4
Brazil	55.7	91	23
Bulgaria	62.7	65	-4
Burkina Faso	53.0	107	-9
Burma	36.1	170	-8
Burundi	48.6	131	10

Cambodia	49.3	129	-21
Cameroon	46.1	148	-12
Canada	84.3	7	-1
Cape Verde	64.4	60	0
Central African Republic	38.7	166	-5
Chad	39.9	165	2
Chile	78.4	18	-11
China	46.5	145	-8
Colombia	68.9	39	-5
Comoros	45.5	150	-8
Congo. Democratic Republic of the Congo	32.8	171	1
Congo. Republic of	36.3	169	0
Costa Rica	62.4	68	-15
Côte d'Ivoire	52.3	113	-6
Croatia	61.1	71	16
Cuba	28.4	177	0
Cyprus	70.1	36	10
Czech Republic	74.6	23	3
Denmark	90.1	1	9
Djibouti	52.0	117	1
Dominica	64.7	58	5
Dominican Republic	54.6	93	-13
Ecuador	44.8	152	7
Egypt	46.7	142	-7
El Salvador	62.0	69	-10
Equatorial Guinea	38.2	167	1
Eritrea	32.7	172	2
Estonia	77.8	19	-8
Ethiopia	41.6	162	-11
Fiji	53.6	103	-4
Finland	82.5	11	8
France	72.6	27	43
Gabon	52.8	109	-4
Gambia	54.5	94	-2
Georgia	71.1	32	-10
Germany	79.4	16	2
Ghana	59.2	75	-9
Greece	59.0	78	41
Guatemala	54.8	92	-9
Guinea	47.5	136	-3
Guinea-Bissau	42.2	159	-16
Guyana	52.0	115	6
Haiti	42.8	156	0
Honduras	50.8	123	-11
Hong Kong SAR	89.8	2	-1
Hungary	70.3	35	16

Iceland	77.3	20	3
India	49.9	126	-6
Indonesia	51.5	120	-20
Iran	29.5	173	0
Ireland	82.2	12	-3
Israel	73.0	25	19
Italy	66.0	51	35
Jamaica	65.1	56	0
Japan	75.9	22	3
Jordan	66.4	49	-10
Kazakhstan	57.4	87	-20
Kenya	52.3	112	-1
Kiribati	48.9	130	34
Korea. North	1.3	178	0
Korea. South	70.9	34	-3
Kuwait	58.7	81	-5
Kyrgyz Republic	57.0	88	-3
Lao P.D.R.	42.3	158	-14
Latvia	68.4	44	-2
Lebanon	53.6	101	-5
Lesotho	53.4	104	50
Liberia	46.3	146	-8
Lithuania	72.6	26	-5
Luxembourg	78.9	17	-1
Macau	68.7	41	-12
Macedonia	65.5	53	-10
Madagascar	54.3	97	-18
Malawi	51.6	119	5
Malaysia	67.0	47	-10
Maldives	46.2	147	-2
Mali	50.5	124	-2
Malta	69.2	38	20
Mauritania	46.8	141	-7
Mauritius	73.9	24	-16
Mexico	63.5	62	-7
Micronesia	50.1	125	28
Moldova	54.1	99	11
Mongolia	58.5	83	14
Montenegro	62.6	66	2
Morocco	56.0	90	13
Mozambique	51.2	122	6
Namibia	58.6	82	12
Nepal	40.7	164	-15
Netherlands	83.1	9	6
New Zealand	88.5	4	1
Nicaragua	53.2	106	-4

Niger	48.2	133	-6
Nigeria	48.0	134	-5
Norway	77.0	21	11
Oman	64.9	57	-9
Pakistan	47.8	135	-9
Panama	58.8	79	-8
Papua New Guinea	49.6	127	5
Paraguay	54.3	96	-18
Peru	63.3	64	-17
Philippines	53.6	100	-11
Poland	68.9	40	10
Portugal	68.5	43	26
Qatar	67.5	46	-16
Romania	63.6	61	1
Russia	46.5	144	-4
Rwanda	61.0	72	-7
Saint. Lucia	71.0	33	0
Saint. Vincent and the Grenadines	65.4	54	-2
Samoa	61.1	70	14
São Tomé and Príncipe	46.7	143	14
Saudi Arabia	57.4	86	-9
Senegal	51.7	118	7
Serbia	59.0	77	18
Seychelles	52.9	108	9
Sierra Leone	42.4	157	-9
Singapore	89.0	3	-1
Slovak Republic	66.0	52	5
Slovenia	68.2	45	29
Solomon Islands	47.4	137	28
South Africa	60.9	73	2
Spain	72.5	29	20
Sri Lanka	53.6	102	-12
Suriname	49.3	128	2
Swaziland	58.3	84	-2
Sweden	83.3	8	12
Switzerland	85.1	6	-2
Taiwan	71.8	30	-13
Tajikistan	43.6	154	-15
Tanzania	52.5	111	-5
Thailand	58.8	80	-8
Timor-Leste	46.0	149	21
Togo	43.4	155	-3
Tonga	52.5	110	-6
Trinidad and Tobago	60.0	74	-1
Tunisia	54.4	95	14
Turkey	63.4	63	1

Turkmenistan	29.2	175	-4
Uganda	54.1	98	-7
Ukraine	47.1	139	16
United Arab Emirates	66.4	50	-22
United Kingdom	82.9	10	4
United States	80.1	14	-2
Uruguay	68.5	42	-4
Uzbekistan	38.0	168	-5
Vanuatu	52.0	116	-23
Venezuela	29.5	174	1
Vietnam	44.9	151	-4
Yemen	48.5	132	-9
Zambia	56.1	89	-1
Zimbabwe	28.5	176	0
Brunei Darussalam	66.8	48	-8

**Table 9: scores and ranking variations between Equal and PCA weighting**

Country Name	2014 Score	Ranking	score with PCA weighting	New Ranking	Rank variation
Albania	66.9	54	67.8	45	9
Algeria	50.8	146	50.7	141	5
Angola	47.7	160	47.9	158	2
Argentina	44.6	166	43.8	164	2
Armenia	68.9	41	68.0	42	-1
Australia	82.0	3	82.3	3	0
Austria	72.4	24	72.0	26	-2
Azerbaijan	61.3	81	59.9	86	-5
Bahamas	69.8	36	69.2	36	0
Bahrain	75.1	13	75.1	17	-4

Bangladesh	54.1	131	53.4	129	2
Barbados	68.3	45	67.8	44	1
Belarus	50.1	150	48.4	156	-6
Belgium	69.9	35	69.7	34	1
Belize	56.7	115	55.6	115	0
Benin	57.1	113	56.8	111	2
Bhutan	56.7	116	54.8	124	-8
Bolivia	48.4	158	48.8	151	7
Bosnia and Herzegovina	58.4	101	58.1	100	1
Botswana	72.0	27	72.2	24	3
Brazil	56.9	114	57.1	106	8
Bulgaria	65.7	61	64.5	66	-5
Burkina Faso	58.9	98	58.4	98	0
Burma	46.5	162	43.4	167	-5
Burundi	51.4	141	50.2	143	-2
Cambodia	57.4	108	57.2	105	3
Cameroon	52.6	136	51.7	135	1
Canada	80.2	6	80.4	6	0
Cape Verde	66.1	60	67.1	53	7

Central African Republic	46.7	161	45.8	161	0
Chad	44.5	167	43.4	168	-1
Chile	78.7	7	79.1	7	0
China	52.5	137	50.5	142	-5
Colombia	70.7	34	70.0	32	2
Comoros	51.4	142	50.1	144	-2
Congo. Democratic Republic of the Congo	40.6	172	39.5	172	0
Congo. Republic of	43.7	169	42.3	169	0
Costa Rica	66.9	53	67.1	54	-1
Côte d'Ivoire	57.7	107	56.9	109	-2
Croatia	60.4	87	61.3	80	7
Cuba	28.7	177	28.3	177	0
Cyprus	67.6	46	67.5	48	-2
Czech Republic	72.2	26	71.9	27	-1
Denmark	76.1	10	75.5	13	-3
Djibouti	55.9	118	55.1	121	-3
Dominica	65.2	63	64.2	68	-5
Dominican Republic	61.3	80	60.9	83	-3
Ecuador	48.0	159	47.4	159	0

Egypt	52.9	135	53.1	130	5
El Salvador	66.2	59	65.9	59	0
Equatorial Guinea	44.4	168	43.7	166	2
Eritrea	38.5	174	35.5	175	-1
Estonia	75.9	11	77.5	8	3
Ethiopia	50.0	151	48.8	152	-1
Fiji	58.7	99	57.3	104	-5
Finland	73.4	19	75.7	12	7
France	63.5	70	64.3	67	3
Gabon	57.8	105	56.9	110	-5
Gambia	59.5	92	58.7	95	-3
Georgia	72.6	22	71.3	30	-8
Germany	73.4	18	75.2	16	2
Ghana	64.2	66	64.6	65	1
Greece	55.7	119	55.6	114	5
Guatemala	61.2	83	61.0	82	1
Guinea	53.5	133	51.6	136	-3
Guinea-Bissau	51.3	143	49.8	147	-4
Guyana	55.7	121	53.6	128	-7



Haiti	48.9	156	46.8	160	-4
Honduras	57.1	112	58.6	96	16
Hong Kong SAR	90.1	1	90.1	1	0
Hungary	67.0	51	67.5	47	4
Iceland	72.4	23	73.4	22	1
India	55.7	120	54.0	126	-6
Indonesia	58.5	100	58.4	97	3
Iran	40.3	173	39.5	173	0
Ireland	76.2	9	76.3	10	-1
Israel	68.4	44	68.7	40	4
Italy	60.9	86	61.3	81	5
Jamaica	66.7	56	65.9	58	-2
Japan	72.4	25	71.5	29	-4
Jordan	69.2	39	69.0	37	2
Kazakhstan	63.7	67	61.8	77	-10
Kenya	57.1	111	56.1	112	-1
Kiribati	46.3	164	43.7	165	-1
Korea. North	1.0	178	1.1	178	0
Korea. South	71.2	31	72.7	23	8

Kuwait	62.3	76	62.3	75	1
Kyrgyz Republic	61.1	85	59.6	90	-5
Lao P.D.R.	51.2	144	49.9	146	-2
Latvia	68.7	42	68.5	41	1
Lebanon	59.4	96	59.1	93	3
Lesotho	49.5	154	48.6	154	0
Liberia	52.4	138	52.0	133	5
Lithuania	73.0	21	74.3	20	1
Luxembourg	74.2	16	76.2	11	5
Macau	71.3	29	71.7	28	1
Macedonia	68.6	43	67.6	46	-3
Madagascar	61.7	79	62.3	76	3
Malawi	55.4	124	54.9	123	1
Malaysia	69.6	37	68.8	39	-2
Maldives	51.0	145	49.9	145	0
Mali	55.5	122	54.0	127	-5
Malta	66.4	58	66.9	56	2
Mauritania	53.2	134	52.4	132	2
Mauritius	76.5	8	76.5	9	-1

Mexico	66.8	55	66.9	57	-2
Micronesia	49.8	153	48.1	157	-4
Moldova	57.3	110	58.2	99	11
Mongolia	58.9	97	57.6	101	-4
Montenegro	63.6	68	63.3	70	-2
Morocco	58.3	103	59.8	88	15
Mozambique	55.0	128	55.4	116	12
Namibia	59.4	94	57.1	107	-13
Nepal	50.1	149	49.4	148	1
Netherlands	74.2	15	75.3	15	0
New Zealand	81.2	5	80.9	5	0
Nicaragua	58.4	102	57.5	102	0
Niger	55.1	127	54.5	125	2
Nigeria	54.3	129	53.0	131	-2
Norway	70.9	32	72.1	25	7
Oman	67.4	48	67.1	51	-3
Pakistan	55.2	126	55.0	122	4
Panama	63.4	71	64.7	64	7
Papua New Guinea	53.9	132	51.3	138	-6
Paraguay	62.0	78	63.6	69	9
Peru	67.4	47	67.1	55	-8
Philippines	60.1	89	59.9	87	2
Poland	67.0	50	67.4	49	1
Portugal	63.5	69	65.1	62	7
Qatar	71.2	30	71.0	31	-1
Romania	65.5	62	65.3	61	1
Russia	51.9	140	51.0	139	1
Rwanda	64.7	65	62.8	73	-8
Saint. Lucia	70.7	33	69.4	35	-2
Saint. Vincent and the Grenadines	67.0	52	65.6	60	-8
Samoa	61.1	84	59.7	89	-5
São Tomé and Príncipe	48.8	157	48.9	150	7
Saudi Arabia	62.2	77	61.4	79	-2
Senegal	55.4	125	55.2	119	6

Serbia	59.4	95	59.0	94	1
Seychelles	56.2	117	55.2	118	-1
Sierra Leone	50.5	148	50.9	140	8
Singapore	89.4	2	89.0	2	0
Slovak Republic	66.4	57	67.2	50	7
Slovenia	62.7	74	63.1	72	2
Solomon Islands	46.2	165	44.2	163	2
South Africa	62.5	75	62.5	74	1
Spain	67.2	49	67.9	43	6
Sri Lanka	60.0	90	59.5	91	-1
Suriname	54.2	130	51.4	137	-7
Swaziland	61.2	82	59.9	85	-3
Sweden	73.1	20	74.3	19	1
Switzerland	81.6	4	81.0	4	0
Taiwan	73.9	17	74.8	18	-1
Tajikistan	52.0	139	51.8	134	5
Tanzania	57.8	106	57.1	108	-2
Thailand	63.3	72	63.2	71	1
Timor-Leste	43.2	170	40.7	171	-1
Togo	49.9	152	49.1	149	3
Tonga	58.2	104	55.2	117	-13
Trinidad and Tobago	62.7	73	61.7	78	-5
Tunisia	57.3	109	55.7	113	-4
Turkey	64.9	64	65.0	63	1
Turkmenistan	42.2	171	41.5	170	1
Uganda	59.9	91	57.5	103	-12
Ukraine	49.3	155	48.4	155	0
United Arab Emirates	71.4	28	70.0	33	-5
United Kingdom	74.9	14	75.4	14	0
United States	75.5	12	74.1	21	-9
Uruguay	69.3	38	69.0	38	0
Uzbekistan	46.5	163	44.8	162	1
Vanuatu	59.5	93	59.4	92	1
Venezuela	36.3	175	35.9	174	1
Vietnam	50.8	147	48.7	153	-6
Yemen	55.5	123	55.1	120	3
Zambia	60.4	88	60.3	84	4
Zimbabwe	35.5	176	34.8	176	0
Brunei Darussalam	69.0	40	67.1	52	-12

**Table 10: Country specific Weights generated by BOD**

Country Name	Property Rights	Freedom from Corruption	Fiscal Freedom	Gov't Spending	Business Freedom	Labor Freedom	Monetary Freedom	Trade Freedom	Investment Freedom	Financial Freedom
Albania	0.000	0.000	0.579	0.000	0.000	0.000	0.000	0.513	0.000	0.000

Algeria	0.000	0.000	0.758	0.000	0.215	0.000	0.101	0.000	0.000	0.000
Angola	0.000	0.000	0.908	0.000	0.000	0.000	0.000	0.113	0.005	0.000
Argentina	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Armenia	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Australia	0.533	0.275	0.000	0.055	0.000	0.000	0.000	0.000	0.000	0.272
Austria	0.729	0.000	0.000	0.000	0.000	0.033	0.000	0.000	0.347	0.000
Azerbaijan	0.000	0.000	0.208	0.000	0.000	0.000	0.910	0.000	0.067	0.000
Bahamas	0.098	0.000	0.817	0.107	0.000	0.041	0.000	0.000	0.000	0.019
Bahrain	0.000	0.000	0.684	0.000	0.000	0.000	0.000	0.372	0.032	0.000
Bangladesh	0.000	0.000	0.000	1.029	0.064	0.000	0.000	0.000	0.000	0.000
Barbados	0.061	0.089	0.221	0.000	0.000	0.000	0.812	0.000	0.000	0.000
Belarus	0.000	0.000	0.579	0.000	0.000	0.000	0.000	0.513	0.000	0.000
Belgium	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Belize	0.000	0.000	0.025	0.074	0.091	0.000	1.001	0.000	0.000	0.000
Benin	0.000	0.000	0.000	0.774	0.000	0.000	0.351	0.000	0.010	0.000
Bhutan	0.000	0.000	0.698	0.000	0.000	0.368	0.000	0.000	0.000	0.000
Bolivia	0.000	0.000	0.579	0.000	0.000	0.000	0.000	0.513	0.000	0.000
Bosnia and Herzegovina	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Botswana	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Brazil	0.000	0.000	0.126	0.010	0.000	0.000	0.975	0.000	0.000	0.082
Bulgaria	0.000	0.000	0.579	0.000	0.000	0.000	0.000	0.513	0.000	0.000
Burkina Faso	0.000	0.000	0.187	0.406	0.000	0.000	0.564	0.000	0.000	0.000
Burma	0.000	0.000	0.073	0.989	0.000	0.032	0.000	0.000	0.000	0.000
Burundi	0.000	0.000	0.098	0.000	0.000	0.000	0.752	0.322	0.003	0.000
Cambodia	0.000	0.000	0.300	0.658	0.000	0.000	0.155	0.000	0.000	0.000
Cameroon	0.000	0.000	0.000	1.041	0.000	0.052	0.000	0.000	0.000	0.000
Canada	0.437	0.000	0.000	0.000	0.000	0.000	0.000	0.674	0.000	0.000
Cape Verde	0.033	0.000	0.157	0.007	0.000	0.000	0.952	0.000	0.041	0.000
Central African Republic	0.000	0.000	0.000	1.069	0.000	0.000	0.000	0.000	0.000	0.000
Chad	0.000	0.000	0.000	0.781	0.000	0.005	0.348	0.000	0.000	0.000
Chile	0.800	0.000	0.000	0.088	0.000	0.000	0.245	0.000	0.000	0.000
China	0.000	0.000	0.000	0.781	0.000	0.005	0.348	0.000	0.000	0.000
Colombia	0.000	0.000	0.000	0.085	0.098	0.000	1.008	0.000	0.000	0.000
Comoros	0.000	0.000	0.000	0.781	0.000	0.005	0.348	0.000	0.000	0.000
Congo. Democratic Republic of the Congo	0.000	0.000	0.076	0.818	0.000	0.000	0.227	0.000	0.000	0.000
Congo. Republic of	0.000	0.000	0.000	0.781	0.000	0.005	0.348	0.000	0.000	0.000
Costa Rica	0.039	0.000	0.000	1.058	0.000	0.000	0.000	0.000	0.000	0.000
Côte d'Ivoire	0.000	0.000	0.009	0.093	0.017	0.000	0.894	0.177	0.000	0.000
Croatia	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Cuba	0.000	0.000	0.093	0.000	0.000	0.000	0.983	0.092	0.000	0.000
Cyprus	0.000	0.000	0.096	0.000	0.002	0.000	0.743	0.334	0.000	0.000

Czech Republic	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Denmark	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111
Djibouti	0.000	0.000	0.208	0.000	0.000	0.000	0.910	0.000	0.067	0.000
Dominica	0.000	0.000	0.000	0.085	0.098	0.000	1.008	0.000	0.000	0.000
Dominican Republic	0.000	0.000	0.027	0.976	0.000	0.000	0.000	0.000	0.101	0.000
Ecuador	0.000	0.000	0.579	0.000	0.000	0.000	0.000	0.513	0.000	0.000
Egypt	0.000	0.000	0.684	0.000	0.000	0.000	0.000	0.372	0.032	0.000
El Salvador	0.000	0.000	0.000	0.570	0.000	0.000	0.538	0.000	0.000	0.053
Equatorial Guinea	0.000	0.000	0.162	0.000	0.000	0.000	0.991	0.000	0.000	0.000
Eritrea	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Estonia	0.777	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.285	0.000
Ethiopia	0.000	0.000	0.000	1.041	0.000	0.052	0.000	0.000	0.000	0.000
Fiji	0.000	0.000	0.000	0.089	0.000	0.115	0.979	0.000	0.009	0.000
Finland	0.642	0.054	0.011	0.000	0.057	0.000	0.000	0.000	0.346	0.000
France	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Gabon	0.000	0.000	0.000	0.781	0.000	0.005	0.348	0.000	0.000	0.000
Gambia	0.000	0.000	0.018	0.770	0.000	0.000	0.346	0.000	0.000	0.000
Georgia	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Germany	0.706	0.000	0.000	0.000	0.064	0.000	0.000	0.000	0.335	0.000
Ghana	0.000	0.000	0.366	0.701	0.000	0.000	0.000	0.000	0.032	0.000
Greece	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Guatemala	0.000	0.000	0.000	1.069	0.000	0.000	0.000	0.000	0.000	0.000
Guinea	0.000	0.000	0.000	1.041	0.000	0.052	0.000	0.000	0.000	0.000
Guinea-Bissau	0.000	0.000	0.420	0.556	0.000	0.012	0.121	0.000	0.000	0.000
Guyana	0.000	0.000	0.000	0.074	0.000	0.112	0.999	0.000	0.004	0.000
Haiti	0.000	0.000	0.147	0.000	0.000	0.000	0.923	0.066	0.052	0.000
Honduras	0.000	0.000	0.187	0.406	0.000	0.000	0.564	0.000	0.000	0.000
Hong Kong SAR	1.013	0.000	0.000	0.086	0.000	0.000	0.000	0.000	0.000	0.013
Hungary	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Iceland	0.437	0.000	0.000	0.000	0.000	0.000	0.000	0.674	0.000	0.000
India	0.000	0.000	0.484	0.566	0.000	0.045	0.000	0.000	0.000	0.000
Indonesia	0.000	0.000	0.109	0.958	0.000	0.000	0.000	0.000	0.000	0.034
Iran	0.000	0.000	0.092	0.970	0.032	0.000	0.000	0.000	0.000	0.000
Ireland	0.328	0.000	0.000	0.000	0.000	0.000	0.408	0.108	0.303	0.000
Israel	0.000	0.000	0.000	0.000	0.000	0.000	0.961	0.005	0.208	0.000
Italy	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Jamaica	0.000	0.000	0.000	0.000	0.040	0.000	0.557	0.000	0.560	0.00

	Kuwait	0.000	0.000	1.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Kyrgyz Republic	0.000	0.000	0.705	0.000	0.000	0.357	0.000	0.000	0.003	0.000
	Lao P.D.R.	0.000	0.000	0.300	0.658	0.000	0.000	0.155	0.000	0.000	0.000
	Latvia	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
	Lebanon	0.000	0.000	0.737	0.131	0.000	0.000	0.000	0.169	0.050	0.000
	Lesotho	0.000	0.000	0.093	0.000	0.000	0.000	0.983	0.092	0.000	0.000
	Liberia	0.000	0.000	0.208	0.000	0.000	0.000	0.910	0.000	0.067	0.000
	Lithuania	0.000	0.000	0.579	0.000	0.000	0.000	0.000	0.513	0.000	0.000
	Luxembourg	0.834	0.000	0.000	0.029	0.000	0.000	0.000	0.000	0.248	0.000
	Macau	0.000	0.000	0.020	0.744	0.000	0.000	0.000	0.337	0.000	0.000
	Macedonia	0.000	0.000	0.097	0.000	0.000	0.000	0.738	0.339	0.000	0.000
	Madagascar	0.000	0.000	0.076	0.818	0.000	0.000	0.227	0.000	0.000	0.000
	Malawi	0.000	0.000	0.579	0.000	0.000	0.000	0.000	0.513	0.000	0.000
	Malaysia	0.000	0.000	0.025	0.074	0.091	0.000	1.001	0.000	0.000	0.000
	Maldives	0.000	0.000	0.800	0.000	0.220	0.040	0.000	0.000	0.000	0.000
	Mali	0.000	0.000	0.000	0.381	0.000	0.000	0.647	0.140	0.000	0.000
	Malta	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
	Mauritania	0.000	0.000	0.208	0.000	0.000	0.000	0.910	0.000	0.067	0.000
	Mauritius	0.000	0.000	0.579	0.000	0.000	0.000	0.000	0.513	0.000	0.000
	Mexico	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
	Micronesia	0.000	0.000	0.579	0.000	0.000	0.000	0.000	0.513	0.000	0.000
	Moldova	0.000	0.000	0.579	0.000	0.000	0.000	0.000	0.513	0.000	0.000
	Mongolia	0.000	0.000	0.108	0.000	0.000	0.227	0.833	0.000	0.000	0.000
	Montenegro	0.000	0.000	0.684	0.000	0.000	0.000	0.000	0.372	0.032	0.000
	Morocco	0.000	0.000	0.000	0.085	0.098	0.000	1.008	0.000	0.000	0.000
	Mozambique	0.000	0.000	0.061	0.024	0.000	0.000	0.953	0.119	0.000	0.028
	Namibia	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
	Nepal	0.000	0.000	0.076	0.818	0.000	0.000	0.227	0.000	0.000	0.000
	Netherlands	0.419	0.086	0.000	0.000	0.000	0.000	0.000	0.450	0.164	0.000
	New Zealand	0.741	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.247	0.123
	Nicaragua	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
	Niger	0.000	0.000	0.000	0.784	0.000	0.000	0.347	0.000	0.000	0.000
	Nigeria	0.000	0.000	0.253	0.432	0.000	0.000	0.460	0.000	0.000	0.000
	Norway	0.437	0.000	0.000	0.000	0.000	0.000	0.000	0.674	0.000	0.000
	Oman	0.000	0.000	0.684	0.000	0.000	0.000	0.000	0.372	0.032	0.000
	Pakistan	0.000	0.000	0.092	0.970	0.032	0.000	0.000	0.000	0.000	0.000
	Panama	0.000	0.000	0.208	0.000	0.000	0.000	0.910	0.000	0.067	0.000
	Papua New Guinea	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
	Paraguay	0.000	0.000	0.418	0.579	0.021	0.000	0.088	0.000	0.000	0.000
	Peru	0.000	0.000	0.000	0.381	0.000	0.000	0.647	0.140	0.000	0.000
	Philippines	0.000	0.000	0.000	0.776	0.005	0.000	0.354	0.000	0.000	0.000
	Poland	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
	Portugal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
	Qatar	0.030	0.000	0.712	0.000	0.000	0.000	0.000	0.322	0.023	0.000
	Romania	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000

Russia	0.000	0.000	0.579	0.000	0.000	0.000	0.000	0.513	0.000	0.000
Rwanda	0.000	0.000	0.000	0.073	0.000	0.157	0.957	0.000	0.000	0.000
Saint. Lucia	0.000	0.000	0.015	0.049	0.004	0.167	0.948	0.000	0.000	0.000
Saint. Vincent and the Grenadines	0.014	0.000	0.000	0.085	0.019	0.082	0.993	0.000	0.000	0.000
Samoa	0.000	0.000	0.108	0.000	0.000	0.227	0.833	0.000	0.000	0.000
São Tomé and Príncipe	0.000	0.000	0.684	0.000	0.000	0.000	0.000	0.372	0.032	0.000
Saudi Arabia	0.000	0.000	1.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Senegal	0.000	0.000	0.000	0.096	0.000	0.000	0.885	0.204	0.000	0.000
Serbia	0.000	0.000	0.684	0.000	0.000	0.000	0.000	0.372	0.032	0.000
Seychelles	0.000	0.000	0.159	0.000	0.025	0.000	0.951	0.000	0.052	0.000
Sierra Leone	0.000	0.000	0.135	0.931	0.000	0.000	0.000	0.000	0.033	0.000
Singapore	1.023	0.000	0.000	0.087	0.000	0.000	0.000	0.000	0.000	0.000
Slovak Republic	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Slovenia	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Solomon Islands	0.000	0.000	0.083	0.000	0.000	0.000	0.886	0.203	0.000	0.000
South Africa	0.000	0.000	0.000	0.079	0.047	0.000	0.946	0.119	0.000	0.000
Spain	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Sri Lanka	0.000	0.000	0.092	0.970	0.032	0.000	0.000	0.000	0.000	0.000
Suriname	0.000	0.000	0.000	0.145	0.000	0.113	0.929	0.000	0.000	0.000
Swaziland	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Sweden	0.405	0.003	0.000	0.000	0.025	0.000	0.356	0.000	0.351	0.000
Switzerland	0.428	0.021	0.000	0.080	0.000	0.000	0.569	0.065	0.000	0.000
Taiwan	0.000	0.000	0.000	0.085	0.098	0.000	1.008	0.000	0.000	0.000
Tajikistan	0.000	0.000	0.731	0.327	0.000	0.000	0.000	0.000	0.000	0.000
Tanzania	0.000	0.000	0.391	0.482	0.000	0.000	0.000	0.227	0.000	0.000
Thailand	0.000	0.000	0.000	1.025	0.000	0.000	0.000	0.000	0.000	0.081
Timor-Leste	0.000	0.000	0.000	0.000	0.000	0.491	0.646	0.000	0.000	0.000
Togo	0.000	0.000	0.000	0.776	0.005	0.000	0.354	0.000	0.000	0.000
Tonga	0.000	0.000	0.386	0.000	0.000	0.672	0.000	0.000	0.000	0.000
Trinidad and Tobago	0.000	0.000	0.579	0.000	0.000	0.000	0.000	0.513	0.000	0.000
Tunisia	0.000	0.000	0.025	0.074	0.091	0.000	1.001	0.000	0.000	0.000
Turkey	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Turkmenistan	0.000	0.000	0.442	0.608	0.043	0.000	0.000	0.000	0.000	0.000
Uganda	0.000	0.000	0.000	1.041	0.000	0.052	0.000	0.000	0.000	0.000
Ukraine	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
United Arab Emirates	0.000	0.000	0.035	0.044	0.000	0.000	0.929	0.172	0.000	0.000
United Kingdom	0.706	0.000	0.000	0.000	0.064	0.000	0.000	0.000	0.335	0.000
United States	0.062	0.000	0.000	0.000	0.000	0.979	0.000	0.000	0.000	0.000
Uruguay	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Uzbekistan	0.000	0.000	0.808	0.052	0.204	0.000	0.000	0.000	0.000	0.000
Vanuatu	0.000	0.000	0.485	0.000	0.000	0.000	0.576	0.000	0.085	0.000



Venezuela	0.000	0.000	0.579	0.000	0.000	0.000	0.000	0.513	0.000	0.000
Vietnam	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Yemen	0.000	0.000	0.579	0.000	0.000	0.000	0.000	0.513	0.000	0.000
Zambia	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.111	0.000	0.000
Zimbabwe	0.000	0.000	0.104	0.000	0.037	0.000	1.027	0.000	0.000	0.000
Brunei Darussalam	0.000	0.000	0.025	0.000	0.000	1.012	0.000	0.000	0.000	0.000

**Table 11: Country specific scores generated by BOD**

Country Name	score with BOD weighting	Ranking with BOD	Ranking Variation
Albania	99	34	20
Algeria	82	169	-23
Angola	88	146	14
Argentina	77	174	-8
Armenia	95	81	-40
Australia	100	1	2
Austria	100	1	23
Azerbaijan	94	92	-11
Bahamas	100	1	35
Bahrain	100	1	12
Bangladesh	99	34	97
Barbados	89	139	-94
Belarus	93	106	44
Belgium	98	48	-13
Belize	92	112	3
Benin	94	92	21
Bhutan	89	139	-23
Bolivia	90	134	24
Bosnia and Herzegovina	97	66	35
Botswana	92	112	-85
Brazil	82	169	-55
Bulgaria	98	48	13
Burkina Faso	93	106	-8
Burma	97	66	96
Burundi	82	169	-28
Cambodia	98	48	60
Cameroon	92	112	24
Canada	99	34	-28
Cape Verde	93	106	-46
Central African Republic	99	34	127
Chad	87	151	16
Chile	100	1	6
China	91	126	11

Colombia	94	92	-58
Comoros	93	106	36
Congo, Democratic Republic of the	81	173	-1
Congo, Republic of	87	151	18
Costa Rica	97	66	-13
Côte d'Ivoire	94	92	15
Croatia	97	66	21
Cuba	76	176	1
Cyprus	94	92	-46
Czech Republic	98	48	-22
Denmark	100	1	9
Djibouti	91	126	-8
Dominica	99	34	29
Dominican Republic	100	1	79
Ecuador	83	166	-7
Egypt	87	151	-16
El Salvador	96	75	-16
Equatorial Guinea	87	151	17
Eritrea	77	174	0
Estonia	99	34	-23
Ethiopia	96	75	76
Fiji	89	139	-40
Finland	100	1	18
France	92	112	-42
Gabon	90	134	-29
Gambia	87	151	-59
Georgia	98	48	-26
Germany	99	34	-16
Ghana	92	112	-46
Greece	92	112	7
Guatemala	100	1	82
Guinea	94	92	41
Guinea-Bissau	95	81	62
Guyana	92	112	9
Haiti	87	151	5
Honduras	91	126	-14
Hong Kong SAR	100	1	0
Hungary	98	48	3
Iceland	99	34	-11
India	86	163	-43
Indonesia	97	66	34
Iran	93	106	67
Ireland	100	1	8
Israel	94	92	-48
Italy	98	48	38
Jamaica	94	92	-36

Japan	100	1	24
Jordan	98	48	-9
Kazakhstan	97	66	1
Kenya	88	146	-35
Kiribati	94	92	72
Korea, North	5	178	0
Korea, South	96	75	-44
Kuwait	98	48	28
Kyrgyz Republic	97	66	19
Lao P.D.R.	95	81	63
Latvia	98	48	-6
Lebanon	92	112	-16
Lesotho	87	151	3
Liberia	86	163	-25
Lithuania	99	34	-13
Luxembourg	100	1	15
Macau	100	1	28
Macedonia	100	1	42
Madagascar	100	1	78
Malawi	82	169	-45
Malaysia	96	75	-38
Maldives	100	1	144
Mali	91	126	-4
Malta	98	48	10
Mauritania	89	139	-5
Mauritius	99	34	-26
Mexico	95	81	-26
Micronesia	98	48	105
Moldova	91	126	-16
Mongolia	87	151	-54
Montenegro	96	75	-7
Morocco	92	112	-9
Mozambique	94	92	36
Namibia	92	112	-18
Nepal	97	66	83
Netherlands	100	1	14
New Zealand	100	1	4
Nicaragua	95	81	21
Niger	100	1	126
Nigeria	87	151	-22
Norway	99	34	-2
Oman	99	34	14
Pakistan	95	81	45
Panama	91	126	-55
Papua New Guinea	95	81	51
Paraguay	100	1	77

Peru	100	1	46
Philippines	99	34	55
Poland	98	48	2
Portugal	98	48	21
Qatar	100	1	29
Romania	98	48	14
Russia	88	146	-6
Rwanda	90	134	-69
Saint. Lucia	97	66	-33
Saint. Vincent and the Grenadines	94	92	-40
Samoa	90	134	-50
São Tomé and Príncipe	89	139	18
Saudi Arabia	100	1	76
Senegal	95	81	44
Serbia	88	146	-51
Seychelles	88	146	-29
Sierra Leone	92	112	36
Singapore	100	1	1
Slovak Republic	98	48	9
Slovenia	98	48	26
Solomon Islands	87	151	14
South Africa	89	139	-64
Spain	98	48	1
Sri Lanka	94	92	-2
Suriname	87	151	-21
Swaziland	91	126	-44
Sweden	100	1	19
Switzerland	100	1	3
Taiwan	99	34	-17
Tajikistan	93	106	33
Tanzania	86	163	-57
Thailand	91	126	-54
Timor-Leste	83	166	4
Togo	92	112	40
Tonga	95	81	23
Trinidad and Tobago	89	139	-66
Tunisia	90	134	-25
Turkey	94	92	-28
Turkmenistan	100	1	170
Uganda	95	81	10
Ukraine	96	75	80
United Arab Emirates	100	1	27
United Kingdom	100	1	13
United States	100	1	11
Uruguay	92	112	-74
Uzbekistan	92	112	51

Vanuatu	100	1	92
Venezuela	76	176	-1
Vietnam	87	151	-4
Yemen	95	81	42
Zambia	94	92	-4
Zimbabwe	83	166	10
Brunei Darussalam	100	1	39

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